REMARKS

Claims 1- 31 are pending in the application. Claims 1 - 31 have been rejected. Claims 1, 12, 13, 16, 17, 22, 25-27 and 31 have been amended. No new claims have been added.

Applicants filed a Declaration for Patent Application and Power of Attorney on May 16, 2001. A copy of the Response to File Missing Parts along with the executed Declaration is included with this Response.

Claims 1 - 16 and 22 - 31 stand rejected under 35 U.S.C. § 101. Claims 1, 12, 13 and 16 have been amended to specifically recite that each of the elements are performed by a module of a computer system. Claims 22 and 26 have been amended to recite that the program product is for causing a computer system to execute instructions. Claims 27 and 31 have been amended to recite that the signal is embodied on a computer readable medium and further that the signal is for causing a computer system to execute instructions. Accordingly, it is respectfully submitted that the claims as amended are directed to statutory subject matter. However, should the claims as amended not conform to the present guidelines for statutory subject matter of the USPTO, the examiner is earnestly encouraged to telephone the undersigned so that the claims may be amended to conform to USPTO guidelines.

Claim 25 stands rejected under 35 U.S.C. § 112. Claim 25 has been amended to address this rejection.

Claims 1 - 6 and 8 - 31 stand rejected under Mukhopadhyay, "Optimal Scheduling of Just-in-Time Purchase Deliveries," (Mukhopadhyay). Claim 7 stands rejected under Mukhopadhyay in view of Jenkins, et al., U.S. Publication No. US 2002/0188499 (Jenkins). These rejections are respectfully traversed.

The present invention generally relates to scheduling delivery of materials from in-house and external inventories for use in manufacturing items. Deliveries are scheduled according to material requirements for manufacturing operations.

The present invention, as set forth by independent claim 1, relates to a method for scheduling delivery of material to a manufacturer with a plurality of manufacturing lines which includes determining a material requirement for an operation of at least one operation on a manufacturing line of the plurality of manufacturing lines, the material requirement being based upon customer orders, and scheduling delivery of material to meet the material requirement from an available inventory of material to the operation on the manufacturing line.

The present invention, as set forth by independent claim 12, relates to a method for scheduling deliveries of material which includes obtaining a material requirement for an operation of at least one operation on a manufacturing line, the material requirement comprising an identified material that has a material need-by time and identifying a next truck scheduled for delivery to the operation, the next truck originating at a material source. The method further includes determining whether a following truck scheduled for delivery to the operation after the next truck has a material delivery time before the material need-by time of the material requirement, and when the following truck has a material delivery time before the material need-by time, delaying processing of the material requirement. The method further includes that when the following truck has a material delivery time after the material need-by time, determining whether a later opportunity to request the identified material exists, and if a later opportunity exists, delaying requesting the identified material and scheduling a delivery of the identified material, and if a later opportunity does not exist, requesting the identified material by adding the identified material to a material request for the next truck and scheduling a delivery of the identified material from the material source to the operation on the next truck.

The present invention, as set forth by independent claim 13, relates to a method for scheduling deliveries of material which includes repeating a series of steps. The series of steps include obtaining a material requirement for an operation on a manufacturing line from a plurality of material requirements, each material requirement of the plurality of material requirements comprises an identified material and a material need-by time, and identifying a next truck scheduled for delivery to the operation, the next truck originating at a material source. The series of steps further includes determining whether a following truck scheduled for delivery to the operation after the next truck has a material delivery time before the material need-by time of the material requirement, and when the following truck has a material delivery time before the

material need-by time, delaying processing of the material requirement, and if the following truck has a material delivery time after the material need-by time, determining whether a later opportunity to request the identified material exists. When a later opportunity exists, delaying requesting the identified material and scheduling a delivery of the identified material, and if a later opportunity does not exist, requesting the identified material by adding the identified material to a material request for the next truck and scheduling a delivery of the identified material from the material source to the operation on the next truck.

The present invention, as set forth by independent claim 16, relates to a method for scheduling deliveries of material which includes repeating a series of steps essentially continuously. The series of steps includes obtaining a material requirement for an operation on a manufacturing line from a plurality of material requirements, each material requirement of the plurality of material requirements comprising an identified material and a material need-by time. The series of steps further includes identifying a next truck scheduled for delivery to the operation, the next truck originating at a material source, determining whether a following truck scheduled for delivery to the operation after the next truck has a material delivery time before the material need-by time of the material requirement, and when the following truck has a material delivery time before the material need-by time, delaying processing of the material requirement. When the following truck has a material delivery time after the material need-by time, determining whether a later opportunity to request the identified material exists, and if a later opportunity exists, delaying requesting the identified material and scheduling a delivery of the identified material. If a later opportunity does not exist, requesting the identified material by adding the identified material to a material request for the next truck and scheduling a delivery of the identified material from the material source to the operation on the next truck.

The present invention, as set forth by independent claim 17, relates to a computer system which includes a processor and a memory. The memory stores instructions to be executed by the processor. The instructions include instructions for determining a material requirement for an operation of at least one operation on a manufacturing line of the plurality of manufacturing lines, and instructions for scheduling delivery of material to meet the material requirement from an available inventory of material to the operation on the manufacturing line.

The present invention, as set forth by independent claim 21, relates to a computer system which includes a processor and a memory. The memory stores instructions to be executed by the processor. The instructions include instructions for repeating a series of steps essentially continuously and instructions for each step in the series of steps which include instructions for obtaining a material requirement for an operation of at least one operation on a manufacturing line, the material requirement comprising an identified material and a material need-by time and instructions for identifying a next truck scheduled for delivery to the operation, the next truck originating at a material source. The instructions further include instructions for determining whether a following truck scheduled for delivery to the operation after the next truck has a material delivery time before the material need-by time of the material requirement and instructions for delaying processing of the material requirement when the following truck has a material delivery time before the material need-by time and instructions for determining whether a later opportunity to request the identified material exists when the following truck has a material delivery time after the material need-by time, instructions for delaying requesting the identified material and scheduling a delivery of the identified material when a later opportunity exists, and instructions for requesting the identified material by adding the identified material to a material request for the next truck when a later opportunity does not exist, and instructions for scheduling a delivery of the identified material from the material source to the operation on the next truck when a later opportunity does not exist.

The present invention, as set forth by independent claim 22, relates to a computer program product which includes instructions for determining a material requirement for an operation of at least one operation on a manufacturing line of the plurality of manufacturing lines, instructions for scheduling delivery of material to meet the material requirement from an available inventory of material to the operation on the manufacturing line, and a computer readable medium for storing the instructions for determining and the instructions for scheduling.

The present invention, as set forth by independent claim 26, relates to a computer program product which includes instructions for repeating a series of steps essentially continuously and instructions for each step in the series of steps which includes instructions for obtaining a material requirement for an operation of at least one operation on a manufacturing line, the material requirement comprising an identified material and a material need-by time and

instructions for identifying a next truck scheduled for delivery to the operation, the next truck originating at a material source. The series of steps further includes instructions for determining whether a following truck scheduled for delivery to the operation after the next truck has a material delivery time before the material need-by time of the material requirement, instructions for delaying processing of the material requirement when the following truck has a material delivery time before the material need-by time, instructions for determining whether a later opportunity to request the identified material exists when the following truck has a material delivery time after the material need-by time, instructions for delaying requesting the identified material and scheduling a delivery of the identified material when a later opportunity exists, instructions for requesting the identified material by adding the identified material to a material request for the next truck when a later opportunity does not exist, and instructions for scheduling a delivery of the identified material from the material source to the operation on the next truck when a later opportunity does not exist and a computer-readable medium for storing the instructions for repeating, the instructions for obtaining, the instructions for identifying, the instructions for determining whether a following truck scheduled for delivery to the operation after the next truck has a material delivery time before the material need-by time of the material requirement, the instructions for delaying processing, the instructions for determining whether a later opportunity to request the identified material exists when the following truck has a material delivery time after the material need-by time, the instructions for delaying requesting, and the instructions for requesting, and the instructions for scheduling.

The present invention, as set forth by independent claim 27, relates to a signal embodied in a carrier wave which includes instructions for determining a material requirement for an operation of at least one operation on a manufacturing line of the plurality of manufacturing lines and instructions for scheduling delivery of material to meet the material requirement from an available inventory of material to the operation on the manufacturing line.

The present invention, as set forth by independent claim 31, relates to a signal embodied in a carrier wave which includes instructions for repeating a series of steps essentially continuously and instructions for each step in the series of steps. The series of steps includes instructions for obtaining a material requirement for an operation of at least one operation on a manufacturing line, the material requirement comprising an identified material and a material

need-by time and instructions for identifying a next truck scheduled for delivery to the operation, the next truck originating at a material source. The series of steps further includes instructions for determining whether a following truck scheduled for delivery to the operation after the next truck has a material delivery time before the material need-by time of the material requirement, instructions for delaying processing of the material requirement when the following truck has a material delivery time before the material need-by time, instructions for determining whether a later opportunity to request the identified material exists when the following truck has a material delivery time after the material need-by time, instructions for delaying requesting the identified material and scheduling a delivery of the identified material when a later opportunity exists, instructions for requesting the identified material by adding the identified material to a material request for the next truck when a later opportunity does not exist and instructions for scheduling a delivery of the identified material from the material source to the operation on the next truck when a later opportunity does not exist.

Mukhopadhyay discloses a just-in-time (JIT) system which addresses the issue of delayed or early delivery of materials to work centers that have limited unloading facilities. Mukhopadhyay provides a proposed solution to this issue via a methodology for obtaining optimal delivery schedules for JIT purchases. The methodology provides an algorithm based decision support system that provides unloading schedules which are suitable for daily JIT delivery planning.

More specifically, when discussing the JIT system for which the unloading schedules are provided, Mukhopadhyay sets forth

> A long-term projection of the requirement of each category is conveyed to each supplier every six months and updated every month for them to plan for procurement and supply. Every day the production planning department prepares a shop floor schedule for the following day's shop loading. Using the bill of material, this loading is broken down into requirements of various raw materials including the sizes and quantity. At noon this breakdown is transmitted electronically to the four suppliers who then get the materials ready for following day's delivery. In the morning the trucks arrive at the unloading dock where the materials are unloaded and taken directly to the shop for operations. Typically, ten to 15 truckloads arrive every morning. The system worked very well owing to the meticulous planning on the part of the staff and the excellent co-operation of the suppliers who have now got the hang of it and realize the benefits to themselves. But all this is threatened because of one problem – the company has only one unloading dock.

> The planning is such that the trucks are given due time to coincide with the due time at the shop floor. When the trucks arrive in the morning, there is usually a queue of five to ten trucks waiting to be unloaded (due to the range of due times being very narrow). The unloading of many of the trucks is delayed, and some of the trucks are unloaded earlier than the scheduled production time. (Mukhopadhyay, Paragraph 7.)
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> To address this issue, Mukhopadhyay sets forth:
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> A decision support system is developed using the algorithm as the source of optimization, The [sic.] demonstrated speed of execution makes it possible for the planners to use it for generating the truck unloading schedule in seconds. They can then transmit this schedule to the suppliers along with their daily order list. The suppliers now know exactly when their particular truck is schedule to start and complete unloading. Any last minute changes can be easily accommodated by a quick rerun of the program. Given that the travel time is quite accurately known (even in cities with congestion like Chicago, local radio stations continually broadcast accurate current travel times between various points), suppliers can plan their loading and despatching [sic.] schedule accurately. (Mukhopadhyay, Paragraph 48.)

Jenkins discloses a system for ensuring manufacturing order fulfillment, specifically addressing supply conflicts such as unexpected delays in production by rerouting and reapplying resources. More specifically, Jenkins discloses time-phased inventory plans that meet customer requirements by ensuring that a company is carrying the right inventory at the right locations. Jenkins discloses time-phased storage and flow of a given product's supply to match demand by creating an inventory strategy that includes deployment plans, master production schedules, and procurement requirements.

Mukhopadhyay and Jenkins, taken alone or in combination, do not teach or suggest a method for scheduling delivery of material to a manufacturer with a plurality of manufacturing lines which includes determining a material requirement for an operation of at least one operation on a manufacturing line of the plurality of manufacturing lines, *the material requirement being based upon customer orders*,, and scheduling delivery of material *to meet the material requirement from an available inventory of material to the operation on the manufacturing line*, all as required by claim 1. Accordingly, claim 1 is allowable over Mukhopadhyay and Jenkins. Claims 2 - 11 depend from claim 1 and are allowable for at least this reason. Claims 17 – 20 and 22 – 25 are allowable for at least substantially the same reasons.

Additionally, Mukhopadhyay and Jenkins, taken alone or in combination, do not teach or suggest a method for scheduling deliveries of material which includes when a following truck has a material delivery time after the material need-by time, determining whether a later opportunity to request the identified material exists, and if a later opportunity exists, delaying requesting the identified material and scheduling a delivery of the identified material, and if a later opportunity does not exist, requesting the identified material by adding the identified material to a material request for the next truck and scheduling a delivery of the identified material from the material source to the operation on the next truck, all as required by claim 12. Accordingly, claim 12 is allowable over Mukhopadhyay and Jenkins. Claims 21 and 31 are allowable for at least substantially the same reasons.

Additionally, Mukhopadhyay and Jenkins, taken alone or in combination, do not teach or suggest a method for scheduling deliveries of material which includes determining whether a following truck scheduled for delivery to the operation after the next truck has a material delivery time before the material need-by time of the material requirement, and when the following truck has a material delivery time before the material need-by time, delaying processing of the material requirement, and if the following truck has a material delivery time after the material need-by time, determining whether a later opportunity to request the identified material exists, much less when a later opportunity exists, delaying requesting the identified material and scheduling a delivery of the identified material, and if a later opportunity does not exist, requesting the identified material by adding the identified material to a material request for the next truck and scheduling a delivery of the identified material from the material source to the operation on the next truck, all as required by claim 13. Accordingly, claim 13 is allowable over Mukhopadhyay and Jenkins. Claims 14 and 15 depend from claim 13 and are allowable for at least this reason. Claims 26 – 30 are allowable for at least substantially the same reasons.

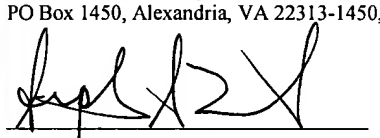
Additionally, Mukhopadhyay and Jenkins, taken alone or in combination, do not teach or suggest a method for scheduling deliveries of material which includes determining whether a following truck scheduled for delivery to the operation after the next truck has a material delivery time before the material need-by time of the material requirement, and when the following truck has a material delivery time before the material need-by time, delaying processing of the material requirement, much less such a method that further includes when the

following truck has a material delivery time after the material need-by time, determining whether a later opportunity to request the identified material exists, and if a later opportunity exists, delaying requesting the identified material and scheduling a delivery of the identified material and if a later opportunity does not exist, requesting the identified material by adding the identified material to a material request for the next truck and scheduling a delivery of the identified material from the material source to the operation on the next truck, all as required by claim 16. Accordingly, claim 16 is allowable over Mukhopadhyay and Jenkins.

CONCLUSION

In view of the amendments and remarks set forth herein, the application is believed to be in condition for allowance and a notice to that effect is solicited. Nonetheless, should any issues remain that might be subject to resolution through a telephonic interview, the examiner is requested to telephone the undersigned.

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, PO Box 1450, Alexandria, VA 22313-1450, on February 1, 2005.



Attorney for Applicant(s)

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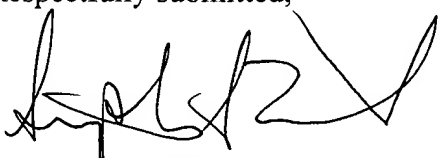
Date of Signature

Respectfully submitted,



Stephen A. Terrile
Attorney for Applicant(s)
Reg. No. 32,946